

REMARKS

Claim Amendments

Claims 21-41 are pending. Claims 21-41 are rejected.

Claims 21, 28 and 35 have been amended to clarify the enhancement limitation and to correct a typographical error.

Claims 23, 30 and 37 have been amended to clarify the enhancement limitation and to correct the insufficiency of antecedent basis for the limitation “the associated digital video frames.”

No new matter is added from the above amendments.

Rejection Under 35 U.S.C. § 112

Claims 21, 23, 30 and 37 are rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement.

With regard to independent claim 21, the Examiner indicates that the feature “enhancing the selected digital video frame by incorporating information included in the other digital video frames into the particular digital video frame” is not disclosed in the specification. Specifically, the Examiner indicates that because the movement information is already included in the frames of the MPEG video stream, “enhancing a frame selected from said video stream by incorporating information included in other video frames appears to be redundant since the video frames already have the movement information.” The Applicant respectfully disagrees with the Examiner’s assertion.

While a MPEG video stream contains movement information, each individual frame in the stream, by itself, does not contain the movement information, or at least does not

contain the *complete* movement information. By its nature, each individual frame is a *still* image, and there is no motion associated with a single frame standing alone. The movement information comes from comparing consecutive frames in the video stream, especially the changes from one frame to the next. A single selected frame itself does not have any movement information without referencing to other frames in the same video stream. At best, a single selected frame only has a small portion of the movement information. Other frames, especially those frames near (either before or after) the selected frame, have additional movement information. The selected frame is enhanced by incorporating these additional movement information contained in other frames from the same video stream.

Therefore, it is not redundant to incorporate information included in other video frames. Pages 8 and 9 of the present application describe this feature in detail. The Applicant respectfully requests that this rejection be withdrawn.

With respect to dependent claims 23, 30 and 37, the Examiner indicates that the limitation “the associated digital video frames” has insufficient antecedent basis. Claims 23, 30 and 37 have been amended to correct this informality.

Rejection Under 35 U.S.C. § 103

Claims 21-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over deCarmo et al. (U.S. Patent 6,415,101) in view of Rangan et al. (U.S. Patent 6,493,872). The Examiner indicates that, although deCarmo does not disclose “enhancing the selected video frame by incorporating information included in the other digital video frames into the particular digital video frame,” this element is disclosed by Rangan. The Applicant respectfully argues that Rangan does not disclose this element in the same fashion as taught by the present application.

The present application incorporates information included in the other digital video frames into the selected video frame for the purpose of enhancing the *video quality* of the selected video frame. Information included in the other digital video frames are used for enhancement operations on the selected video frame such as color or gamma correction (see present application, page 8, line 23), zoom operation (see present application, page 8, line 23), pixel interpolation or alignment (see present application, page 9, lines 10-11), etc. In other words, information included in the other digital video frames are used to digitally manipulate the selected video frame (see present application, page 8, line 23) in order to enhance the video and particularly the image quality of the selected video frame.

In contrast, Rangan adds time marking, physical marking, and identifying numbers to video frames not to enhance the video quality of the frames themselves, but for the *synchronization* of two or more video streams (see Rangan, column 20, line 47 to column 21, line 7). The image quality of the individual video frames remains unchanged after this information is added to the video frames. Therefore, Rangan does not disclose enhancing the *video quality* of the selected video frame by incorporation information included in the other digital video frames into the selected video frame. There is no motivation to combine Rangan with deCarmo in order to achieve the method taught by the present application, since Rangan and the present application focus on different objectives.

Independent claims 21, 28 and 35 have been amended to clarify this distinction between the present application and Rangan, and therefore should be patentable over deCarmo in view of Rangan. Dependent claims should be patentable over deCarmo in view of Rangan for at least the same reason.

In addition, with respect to claims 22, 29 and 36, which depend on claims 21, 28 and 35 respectively, the Examiner indicates that deCarmo discloses multiple view angles and the angle block supplied on DVD content is movement information for the selected view.

However, deCarmo does not appear to disclose incorporating multiple view angles into the selected view to enhance the video quality of the selected view. In contrast, with the present application, the movement information from the other video frames is incorporated into the selected video frame to enhance the video quality of the selected video frame.

With respect to claims 23, 30 and 37, the same argument for the independent claims 21, 28 and 35 applies in that Rangan does not disclose incorporating information included in the corresponding portions of other digital video frames into the portion of the selected video frame to enhance the *video quality* of the portion of the selected video frame. Claims 23, 30 and 37 have been amended to clarify this distinction between the present application and Rangan.

With respect to claims 26, 33 and 40, although deCarmo discloses resize (zoom) operation on the multiple views of the video frame from different angles, it does not appear to describe other image quality enhancement operations. Further, deCarmo does not appear to describe performing the resize operation on the primary angle and enhancing the resulting resized primary angle view using information included in other secondary angle views.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all pending claims are allowable. Should the Examiner believe that a further telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,

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